ESIP Products and Services Committee 2011 Budget Request

The Products and Services Committee is requesting $30,000 for FY 2011 to expand its internal testbed that evaluates prototype standards, services, protocols, and best practices. These capabilities help users to discover, use, and interpret Federation products and services. The testbed serves as a forum for innovative collaboration across all sectors of the Federation and enables our Committee (and the Federation, more generally) to improve availability and accessibility of our member products and services. The Federation wiki will be used to share comments about each testbed activity, including suggested best practices. The testbed is not intended to test new technologies; rather it offers a unified environment to gain consensus on community best practices.

Appendix A lists the proposed testbed tasks. The testbed will require computer and web programming support (Contract Services) at the 0.5 FTE level to establish the infrastructure for all tasks. All task-related expenses are for **Contract Services**.

To determine who will carry out each funded task, a call will be sent out to ESIP-all for brief proposals. Any member of the ESIP community may submit a proposal or be part of a proposal team. The proposals will be evaluated by a subcommittee within the Products and Services Committee. Winning teams will be required to provide monthly progress reports at Committee telecons and to present a poster or other report at a Federation Meeting. The Committee will provide regular written reports of accomplishments to the Executive Committee and brief oral reports at Federation Meetings. The reports will highlight the value added to Federation member products and services accruing from the testbed.

These tasks will build upon those carried out in FY2009 that established the testbed. As part of that activity, the testbed enabled: i) a searchable member directory by skills; ii) a testing of unique object identifier schemes to assign a permanent name to Federation member datasets; iii) a community ontology of data services and datatypes; and iv) a clone of the Air Quality portal for other application areas. We did not request any funds for FY2010.
The FY2011 request aligns with the following Federation Strategic Plan elements:

- Demonstrate use through community-vetted demos, pilots and applications.
- Provide mechanisms for community review of data, products, applications and other resources.
- Develop and share alternative approaches to sustaining Earth science data and information networks
- Promote use of technical standards and best practices for data management, stewardship and application development.
- Recognize and promote best practices for providing feedback to sponsors.

Appendix A: Proposed Testbed Tasks

Essential:

1. Advertising of Federation Member Services
Many **web services** are offered by Federation members, but it is difficult to know that these services exist or what services they perform. Several machine-processable mechanisms for advertising services (such as service casting) have been evaluated by the NASA Tech Infusion Working Group. The testbed will provide an environment to demonstrate how Federation-wide member services can be advertised, described, and chained together using existing technologies (e.g., Atom feeds). In particular, new standards will be tried out, including an ESIP namespace to categorize these services. This activity will be particularly useful for advertising the availability of new and real-time services.
ESIP Community Benefits: Better accessibility of Federation products and services
Cost: $8K to setup a test service with input from the Tech Infusion Working Group.

2. Data and Information Quality
Our Committee has a longstanding interest in providing quality measures for Federation products and services. Data quality has many dimensions (instrument accuracy, algorithm effectiveness, etc.) and is highly dependent upon the intended applications. For example, real-time applications have relatively low **accuracy** requirements, but **service quality** (% of time operational) is crucial. We will establish criteria for various dimensions and levels of services of data and service quality. Quality annotations will be elicited from both ESIP providers and the greater user community who can "rate" Federation offerings (1 to 5 stars) and provide supporting comments.
ESIP Community Benefits: Better branding and usability of Federation products and services
Cost: $7K to setup a classification/annotation scheme for data and service quality according to standard quality measures and dimensions.

3. Metadata for Customized Product-Services
Many Federation members offer virtual, hybrid products-services that are created on-demand. Full metadata descriptions require new standards that are robust enough to describe and invoke these offerings. We will explore new metadata options for our members that capture the description, capabilities, and provenance of such products, and their impacts on cataloging.
ESIP Community Benefits: Better description of innovative Federation products and services
Cost: $6K to setup and implement metadata extensions for several virtual data products that are redirected by the testbed, as identified by the Products and Services Committee.

Important:

4. Service Exchange Bank
Federation members typically have many expert technical skills of potential value to offer to other members. The Service Exchange Bank provides a formal mechanism to barter

such services – they "earn" points by providing services to other members and "spend" points by obtaining services. Furthermore, this Bank provides complete metrics on the exchanges. This Bank will build on the existing database of Federation skills and members. It will be implemented using an existing Drupal module for this purpose. No dollar value will be placed on the services, which will be measured in hours only, so no tax reporting requirements are involved. This capability follows in the spirit of an earlier Federation listing of "personals", where services available and needed could be advertised. Registration and participation in this skills bank will be limited to members of Federation organizations. To help make this bank effective, additional features will be added to enable: i) skill registration of organizations (in addition to the current registration of individuals); ii) advertisement of services wanted (in addition to the current services offered); and full searching by any criteria.

ESIP Community Benefits: Metrics on connections that were enabled through the Federation. Better networking and use of skills of Federation members. Skills banks have proven highly successful in building communities.

Cost: $5K to establish the infrastructure, initiate the service, and extend the current expert database, as required.

5. Service to Determine if Two Scientific Datasets are Equivalent
It is often desirable to determine if two files are scientifically equivalent, despite differing formats, data models, data structures, array orderings, or byte orderings. In this context, equivalence refers to the same data values to within a specified threshold. While this problem is complex in its most general form, we will focus the service on simple multidimensional arrays that can be readily compared.

ESIP Community Benefits: Inventory of Federation products and services

Cost: $4K to setup and implement a web service.